

Office of the County Veterinarian

Disease Updates

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Issue 3

San Diego County Animal Disease Diagnostic Laboratory

Our Mission

To protect and improve the well-being of animals, agriculture, people and the environment through excellence in diagnostics, outreach and education.



Canine herpesvirus 1 infection is suspected in the death of two 12 day-old beagles with hemorrhagic nephritis, meningitis, and pneumonia. Intranuclear inclusion bodies were observed on histological examination of the kidneys, consistent with canine herpesvirus 1 infection.

Chronic hepatic necrosis from copper toxicosis was diagnosed in a 1.5 year-old male Dalmatian from Lemon Grove. Copper stain of the liver revealed moderate to abundant copper positive granules within the cytoplasm of hepatocytes throughout the hepatic lobules. The abnormal accumulation of copper within the hepatocytes is consistent with Dalmatian copper associated liver disease, which has been recently described in the literature. A full sibling of this dog died of hepatic failure, suggesting an inherited hepatopathy. The Dalmatian Club of America is sponsoring a DNA study of Dalmatians to identify genetic markers to help eliminate this disease from the breed.

Severe disseminated **coccidioidomycosis** was diagnosed histologically in an adult male Doberman pinscher with a history of prior treatment for *Coccidioides immitis*. It was reported that initial diagnosis and treatment started in 2000 when the dog lived in Arizona.

Aspergillosis is suspected in a German shepherd with disseminated fungal infection of the heart, lungs, spleen, lymph nodes, and kidneys. *Aspergillus* is a ubiquitous environmental fungus; however, it can cause opportunistic infection in animals and humans. German shepherds are predisposed to opportunistic *Aspergillus* infections (Greene. *Infectious Diseases of the Dog and Cat*, 2nd ed).

Heavy growth of **clostridia** species (including *Clostridium perfringens*) was associated with necrotizing intestinal lesions in a 9 year-old male miniature pinscher from North County. Clostridia endotoxins may have contributed to systemic shock in this animal. The dog vomited after receiving annual vaccinations (Bordetella, DHPP, and rabies). It was then treated with injectable medications by the veterinarian the same day. The following day the dog was found dead. Although the early phase of anaphylactic shock (manifested as gastrointestinal symptoms in dogs) was treated, the inflammatory process had been set into motion leading to the late-phase reaction and sustained intestinal hypoxia. In this low-oxygen state, clostridial overgrowth and endotoxin production could occur leading to endotoxic shock and the animal's death.

Multiple adult heartworms (*Dirofilaria immitis*) and pulmonary thromboemboli were found in an 11 year-old male Queensland heeler from the Poway area. The dog had a history of "slowing down" over the last year, but had no other reported clinical signs other than tachypnea on the day of death. It is unknown if this dog traveled outside the San Diego area.

A **pheochromocytoma** was found in a 16 year-old male Labrador cross. Pheochromocytomas are tumors arising from the adrenal medulla. These tumors are rarely functional. In rare functional forms, tachycardia, edema, and cardiac hypertrophy have been observed in some animals and attributed to excessive secretion of catecholamines (epinephrine and norepinephrine). Often these tumors are incidental findings at necropsy. Larger tumors frequently invade into the posterior vena cava forming a large tumor cell thrombus that causes partial or complete occlusion of the vessel.



Four unrelated cases of **feline infectious peritonitis** were diagnosed by gross and histological lesions. The cats varied in age from 5 months to 9 years and were from different areas of the county.



Feline infectious peritonitis in a 9 year-old domestic short hair cat.

Two cases of **cryptococcosis** were diagnosed in two unassociated adult male domestic short hair cats. Cryptococcosis is a common mycosis of cats. The etiologic agent in the U.S. is the free-living yeast *Cryptococcus neoformans*. The thick polysaccharide capsule contributes to the virulence of this yeast, inhibiting the inflammatory

response. The nasal cavity is the most common site of primary infection in cats and often leads to what is described as the “Roman nose” appearance.

Cryptococciosis is a major opportunistic infection in immunocompromised humans; however it does not aerosolize and is not considered to be a contagious zoonosis.

Histoplasma capsulatum was the cause of a disseminated fungal infection involving the adrenal glands, lungs, and liver of an 11 year-old male domestic short hair cat. The incidence of histoplasmosis is rare with sporadic cases in southern California. It is not generally recognized as endemic to this region. It is more commonly seen clinically in the areas of the Ohio and Mississippi River Valleys. Infection occurs when spores from contaminated soil are inhaled. Bird or bat droppings can propagate the growth of the organism. Although histoplasmosis is not spread by direct contact between hosts, humans and animals can be concurrently infected by a shared environmental source. The source for this infection in the cat has not been identified.

An **astrocytoma** with fibrillary histomorphology was found in the cerebrum of a 5 year-old female domestic short hair cat. Prior to death, the cat was emaciated, hypothermic, and all four limbs were rigid. Astrocytomas are common primary brain tumors in cats and dogs.



Avian

Cryptococcous neoformans was identified microscopically by impression smear of an orofacial mass and on histological examination of the lung and the orofacial mass of an adult male Western gull found in Pacific Beach.

Candidiasis was also found histologically in this bird.

Acute pulmonary congestion, possibly due to acute **environmental toxin exposure**, was diagnosed in two cockatiels (a 13 year-old female and a 14 year-old male) from the same household. Birds are highly sensitive to the fumes emitted by many household articles

including heated non-stick cookware (eg. Teflon, silverstone), PFC-coated food containers (microwave popcorn bags, pizza boxes, fast-food boxes), and self-cleaning ovens.

Avian tuberculosis (*Mycobacterium avium*) was diagnosed in a male parrot upon microscopic observation of macrophages containing acid-fast bacteria in the internal organs and mucosa of the small intestines. Infected birds with advanced lesions excrete the organism in their feces, which can infect other birds and mammals, including humans.

Pigeon Paramyxovirus infection (PPMV-1) was diagnosed in a male pigeon found in central San Diego. This is a strain closely related to Newcastle Disease Virus but is serologically, biochemically, and pathogenically unique. Hosts include pigeons and feral doves, although many species of birds can become infected. Clinical signs include anorexia, diarrhea, torticollis, wing paralysis, and nestling mortality.



Equine

Severe fibrosis of the pulmonary alveolar interstitium and airways resulted in hypertrophy of the diaphragm and right ventricle, and heart failure in a 24 year-old quarter horse mare. The inciting cause of the pulmonary damage was not evident. **Fibrosing alveolitis** in equines has been speculated to result from one of many factors, including viral infections such as equine herpesvirus and equine influenza virus, toxicities such as ingestion of toxic plants (*Crotalaria* species, perilla mint), and pesticides such as paraquat. The lesions differ from those typically considered related to Chronic Obstructive Pulmonary Disease (COPD) syndrome, which is an allergic reaction centered on bronchioles.



Other Animals

A 4 year-old Pygmy goat from East County was diagnosed with **chronic hepatic copper toxicity**.

Acute renal tubular necrosis was diagnosed in an adult male goat found dead on private property in North County. Although the source is unknown, ingestion of a toxic plant is suspected.

Pasteurella multocida sepsis was diagnosed in a spayed female pet rabbit. *Pasteurella multocida* is a common pathogen of rabbits, producing both upper and lower respiratory infections, middle ear infections, skin abscesses, or pyometra. Chickens are a common carrier, but show few clinical signs of the disease. Rabbits generally respond poorly to medical treatment.



Other News

The Office of the County Veterinarian (OCV) trains future vets. This summer, the lab hosted 4 veterinary students – 3 from Western University and 1 from the University of Wisconsin. The Wisconsin student was selected by the C.L. Davis, D.V.M. Foundation for the Advancement of Veterinary and Comparative Pathology (www.cldavis.org) to pursue additional studies in anatomic pathology and histology at our facility. The students work side-by-side with our pathologists as they study cases submitted to the OCV. Each student is required to present a case study to the OCV staff at the end of their rotation.



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